PART I - ADMINISTRATIVE

Section 1. General administrative information

Title of project

Protect & Restore Big Canyon Creek Watershed

BPA project number: 9901600
Contract renewal date (mm/yyyy): 3/2000 ☐ **Multiple actions?**

Business name of agency, institution or organization requesting funding
Nez Perce Fisheries/Watershed

Business acronym (if appropriate) NPT

Proposal contact person or principal investigator:

Name	Felix M. Mcgowan
Mailing Address	P.O. Box 365
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NPPC Program Measure Number(s) which this project addresses
Section 7.6 - Habitat goals, policies, and objectives; Section 7-7 Cooperative havitat protection and improvement with private landowners; Section 7-8 Implement state, federal, and tribal habitat improvements.

FWS/NMFS Biological Opinion Number(s) which this project addresses

Other planning document references
Bonneville Power Administration, 1997. Watershed Management Program: Final Environmental Impact Statement.

Columbia Basin Fish and Wildlife Authority, 1997. Intergrated Watershed Projects: The Process and Criteria for Selecting Watershed Projects for the Columbia Basin Fish & Wildlife Program.

Columbia River Fish & Wildlife Program, 1994. Columbia River Basin Fish & Wildlife Program

CRITFC, 1995. WY-KAN-USH-MI-WA-KISH-WIT, Spirits of the Salmon, Volume I & II. Portland, OR.

Nez Perce Tribe and Idaho Department of Fish & Game, 1990. Clearwater River Subbasin Salmon and Steelhead Production Plan. Power Planning Council & CBFWA. Boise, ID.

Short description
Restore Big Canyon Creek to a more healthy and productive system which is capable of sustaining a self perpetuating population of anadromous and resident fish.

Target species
Targeted species include both A-run steelhead and Coho Salmon.

Section 2. Sorting and evaluation

Subbasin
Clearwater River Subbasin

Evaluation Process Sort

CBFWA caucus	Special evaluation process	ISRP project type
Mark one or more caucus	If your project fits either of these processes, mark one or both	Mark one or more categories
☒ Anadromous fish ☐ Resident fish ☐ Wildlife	☒ Multi-year (milestone-based evaluation) ☒ Watershed project evaluation	☐ Watershed councils/model watersheds ☐ Information dissemination ☐ Operation & maintenance ☐ New construction ☐ Research & monitoring ☒ Implementation & management ☐ Wildlife habitat acquisitions

Section 3. Relationships to other Bonneville projects

Umbrella / sub-proposal relationships. List umbrella project first.

Project #	Project title/description

Other dependent or critically-related projects

Project #	Project title/description	Nature of relationship
9608600	Clearwater Watershed Coordinator-Idaho Soil and Conervation District	Coordinate all projects within the Clearwater Subbasin
9600600	Clearwater Watershed Coordinator-Nez Perce Tribe	Coordinate all projects within the Clearwater Subbasin
9901700	Protect and Restore Lapwai Creek Watershed	was in umbrella table
9607711	Restore McComas Meadows/Meadow Creek Watershed	was in umbrella table
9607708	Protect and Restore Lolo Creek Watershed	was in umbrella table
9607709	Protect and Restore Squaw to Papoose Watersheds	was in umbrella table
9607707	Focus Watershed Coordinator	was in umbrella table
20084	Protect and Restore the North Lochsa Face Analysis Area Watersheds	was in umbrella table
20085	Analyse and Improve Fish Screens	was in umbrella table
20086	Rehabilitate Newsome Creek	was in umbrella table
20087	Protect and Restore Mill Creek	was in umbrella table

Section 4. Objectives, tasks and schedules

Past accomplishments

Year	Accomplishment	Met biological objectives?
1999	Completed watershed assessment on Big Canyon Creek.	

Objectives and tasks

Obj 1,2,3	Objective	Task a,b,c	Task
1	Participate in the Big Canyon Creek advisory group to address the needs of the system.	a	Review Best Management Practices (BMP) for Big Canyon Creek.
		b	Meet monthly to discuss concerns, projects, needs, etc.

		c	Document meetings and work done within the watershed.
2	Gather additional hydrological data on Big Canyon Creek.	a	Work with Nez Perce Tribal Water Resouces and state agencies to gather additional channel monitoring data.
		b	Aid in the monitoring of current sights.
		c	Monitor channel substrate.
		d	Determine flow regimes needed for fisheries in Big Canyon Creek and tributaries.
3	Immediate work to be done within Big Canyon Creek riparian zones	a	Fence Big Canyon Creek in riparian areas that are over grazed.
		b	Provide off channel watering sights for the livestock.
		c	Re-vegetate streambanks where there is highly erodable and unstable soils.
4	Disseminate information about work in the watershed.	a	Write quarterly and annual reports.
		b	Write proposals for future project years.
		c	Prepare and deliver presentation's to peers and public.

Objective schedules and costs

Obj #	Start date mm/yyyy	End date mm/yyyy	Measureable biological objective(s)	Milestone	FY2000 Cost %
1	3/2000	2/2001		X	10.00%
2	3/2000	2/2001		X	30.00%
3	7/2000	9/2000		X	50.00%
4	3/2000	2/2001		X	10.00%
				Total	100.00%

Schedule constraints

Due to inclimate weather and land ownership within the watershed there may be some schedule constraints.

Completion date

Section 5. Budget

FY99 project budget (BPA obligated): $150,000

FY2000 budget by line item

Item	Note	% of total	FY2000
Personnel		%43	26380
Fringe benefits		%10	6332
Supplies, materials, non-expendable property		%4	2500
Operations & maintenance		%0	
Capital acquisitions or improvements (e.g. land, buildings, major equip.)		%0	
NEPA costs		%0	
Construction-related support		%0	
PIT tags	# of tags:	%0	
Travel		%4	2380
Indirect costs		%15	9184
Subcontractor		%20	12000
Other	Vehicle costs	%4	2,500
TOTAL BPA FY2000 BUDGET REQUEST			$61,276

Cost sharing

Organization	Item or service provided	% total project cost (incl. BPA)	Amount ($)
		%0	
		%0	
		%0	
		%0	
Total project cost (including BPA portion)			$61,276

Outyear costs

	FY2001	FY02	FY03	FY04
Total budget	$100,000	$100,000	$50,000	$50,000

Section 6. References

Watershed?	Reference
☐	Adams, Barry & Fitch, Lorne, 1998. Caring for the Green Zone. Pub. No. 1-581.
☐	Columbia Basin Fish and Wildlife Authority, 1997. Intergrated Watershed Projects: The Process and Criteria for Selecting Watershed Projects for the Columbia Basin Fish & Wildlife Program.
☐	Columbia River Fish & Wildlife Program, 1994. Columbia River Basin Fish & Wildlife Program
☐	CRITFC, 1995. WY-KAN-USH-MI-WA-KISH-WIT, Spirits of the Salmon, Volume I & II. Portland, OR.
☐	Harrelson, Cheryl, et al. 1994. Stream Channel Reference Sites: An Illustrated Guide to Field Technique. General Technical Report RM-245.
☐	Kucera, P.A., Johnson, J.H.. 1983. A Biological and Physical Inventory of the Nez Perce Reservation.
☐	Nez Perce Soil & Water Conservation District, 1995. Big Canyon Creek Environmental Assessment, Final Planning Report. Lewiston, ID.
☐	Nez Perce Tribe and Idaho Department of Fish & Game, 1990. Clearwater River Subbasin Salmon and Steelhead Production Plan. Power Planning Council & CBFWA. Boise, ID.
☐	Rosgen, Dave. 1996. Applied River Morphology. Pagosa Springs, CO
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PART II - NARRATIVE

Section 7. Abstract

Big Canyon Creek has historically, and to some extent today, supported an A-run steelhead population but because of natural events, commercial, agricultural, and transportation activities it has been severely impacted. The Nez Perce Tribal Hatchery (NPTH) has plans to begin outplanting Coho salmon in the drainage to reintroduce a species that was eliminated by these land practices and water management issues like the many dams located on the main stems. The main goal of this proposal is to continue work in re-establishing a healthy watershed that will benefit fish, wildlife, and meet the expectations of people within the watershed. This will be accomplished by working with agencies in the region including but not limited to all resources in the Nez Perce Tribe, private landowners, USDA – Natural Resources Conservation Service, Idaho Soil Conservation Commission, Bureau of Land Management, and Idaho Fish & Game. Within section 7.6 of the Columbia River Basin Fish & Wildlife Plan coordinated, cooperative efforts to protect salmon and steelhead habitat within the basins are needed.

Our proposal will be organized to meet this section of plan. Passive restoration is not applicable in all reaches of the watershed due to the land management practices so we will use a soft Bioengineering approach to accomplish our goals where we will apply active restoration activities. We will use riparian vegetation to aid in stabilizing streambanks and filter sediment entering the riparian zone. The rehabilitation of this creek will take at least five years of continuous work that will help re-establish historical fish habitat. We will monitor our impacts by doing Rosgen stream survey's to access hydrological affects, snorkel counts to document juvenile survival, and redd counts to document adult spawning success.

Section 8. Project description

a. Technical and/or scientific background

Big Canyon Creek flows for approximately 30 miles located entirely within the Nez Perce Reservation and flows directly into the Clearwater River (Kucera, et.al., 1983). The city of Peck is located on the mainstem of Big Canyon Creek and contributes to the problems within the watershed. Big Canyon Creek was once a free flowing stream but due to man made influences the stream can no longer act as efficiently as it once did. Little Canyon Creek is the major tributary and flows about 18 miles where it discharges into Big Canyon Creek, 2.3 miles from the mouth. Many smaller streams and intermittent tributaries flow into the Big Canyon system throughout its length. General problems impacting the watershed include low summer flows, high summer stream temperatures, sedimentation and instream cover. Major water quality problems are nutrient concentrations while some fecal coliform bacteria violations occur in the watershed (Kucera, et.al., 1983).

Big Canyon Creek has historically, and to some extent today, supported an A-run steelhead population but because of natural events, commercial, agricultural, and transportation activities it has been severely impacted. There are approximately 193 miles of roads within the watershed including 10 miles of hard surface roads, 80 miles of hard or improved surface roads, and 103 miles of other roads including unsurfaced. It is estimated that 60% of the sediment delivery is contributed from unsurfaced, unmaintained roads within the system (NPSWCD, 1995). Stream reaches that are not channelized by road building were heavily damaged in the 1996 flood event, which caused riparian vegetation to up-root, gravel's were deposited, stream banks eroded and it was forced out of its original stream channel. Following the flood, dozers and backhoes were allowed to enter the stream channel without restriction or regard for fisheries habitat protection. The flood in combination with stream excavation intended to abate future flood impacts, have compounded the damage done to fisheries habitat. These activities have permanently changed the characteristics of Big Canyon Creek. Within the watershed logging, road building, grazing, and flood control activities have created major habitat constraints (CRITFC, 1995). The constraints include sedimentation, low flows, waters quality (temperatures), migration barriers, impacted rearing and spawning habitat, riparian degradation and channel/bank instability (CRITFC, 1995). These problems are

evident within the entire watershed with few unaffected reaches and need to be addressed in order to provide the habitat necessary to successfully rehabilitate Big Canyon Creek.

At this point there is a coordinated effort to address the problems within the watershed. The state of Idaho focus watershed coordinators has been attending the meeting on behalf of both the Nez Perce Tribe and the state of Idaho. Section 7 of the Columbia River Fish & Wildlife Program directs agencies to work in a cooperative way for the benefit of the resource. The state representative will continue the current role and the tribe will step up efforts to work within the Big Canyon Creek Watershed group.

Although flooding is a natural event that is part of all healthy ecosystems Big Canyon Creek can no longer handle high flow events due to the man's attempts to meet only their needs and not the needs of the stream. The flood event of 1996 had an even greater effect on the creek due to man's interference. Land cover and subsequent management have resulted in dramatic changes to runoff and peak discharge from the watershed during storm events. The USDA NRCS TR-20 computer model recreated historic watershed conditions. Based on historic date the peak discharge for the 5 year, 24-hour storm was calculated at 850 CFS. The same storm under present conditions has a calculated peak of 2,980 CFS (NPSWCD, 1995). This shows that the historic storage capacity is no longer capable of preventing the flood events seen in the recent past. Our proposal will explore ways that this problem can be addressed.

b. Rationale and significance to Regional Programs

The restoration of Big Canyon Creek to provide healthy habitat for anadromous fish is included within multiple documents including; the Tribal Recovery Program (Spirit of the Salmon), Columbia Basin System Production Plan for Salmon and Steelhead, and the Columbia River Basin Fish and Wildlife Program. Each of these documents will be discussed in this section.

The first regional document is Wy-Kan-Ush-Mi-Wa-Kish-Wit, The Spirit of the Salmon, which is the fish restoration plan of the four Columbia River Tribes. The goals for fish restoration focus on putting fish back into the rivers and tributaries but one of the goals emphasizes using strategies that rely on natural production and healthy river systems to achieve the restoration activities of the tribes (CRITFC, 1995). Putting fish back into river and stream systems alone are not enough to restore their populations, they need a healthy system to return, spawn, and rear in. Our proposal will mitigate (in place, in kind) losses due to man activities listed in the previous section.

The Clearwater River Subbasin Salmon and Steelhead Production Plan (CRP) discusses the habitat protection needs, constraints and opportunities for establishing production objectives, and anadromous fish production plans. Big Canyon Creek is classified within the document as a class 2 stream, by habitat degradation standards, which means that there is up to a 10% reduction in natural production capacity that has occurred due to high sediment levels (CRP, 1990). Our work within the watershed is

designed to address this issue and implement plans that will help increase the natural production capacity. We are also working to address other concerns within the watershed listed in section 7. We will begin addressing the data gaps identified within the Columbia River Fish & Wildlife Plan to further our baseline information before work is done in the watershed. First and foremost is the completion of the watershed assessment to be completed in the spring of 1999. The habitat objectives include protecting and/or enhancing habitat in stream used or potentially used by anadromous fish to enable optimum production and to provide adequate streamflows for the spawning, incubation, rearing and migrating life stages of anadromous fish (CRP, 1990).

The final regional plan is the Columbia River Basin Fish & Wildlife Program (CRBFWP). Habitat restoration is a large part of the plan because habitat quality improvements are needed to increase the productivity of many stocks. Reduced habitat quality results in lower survival during critical spawning, incubation, rearing and migration periods, even when population densities are low (CRBFWP, 1994). The improvement of habitat will allow greater juvenile and adult survival at each freshwater stage. Anadromous fish spend from one to three years of their life cycle in freshwater as juveniles and several months as adults. During these freshwater stages human activities have the greatest impact on the survival of these populations (CRBFWP, 1994). The Council believes the best approach to watershed restoration is for activities to be cooperative between federal, state, private and tribal agencies. “Furthermore, if watershed restoration is to be successful, instream restoration should be accompanied by riparian and upslope restoration. Positive actions taken to rehabilitate watersheds in the interest of rescuing and restoring salmon and steelhead stocks will result in long-term benefits to other basin resources dependent on watershed health”, (CRBFWP, 1994).

c. Relationships to other projects

The Soil Conservation Districts are charged with the role and responsibility of carrying out the goals of the Clean Water Act. In 1989 the Big Canyon Creek Water Quality Status Report concluded that pollutants from nonpoint sources adversely affect the designated beneficial use of the creek. There was information gathered for three additional years until the Nez Perce Soil & Water Conservation District and the Lewis Soil Conservation District reached a cooperative agreement outlining the responsibility toward managing these uses. An advisory committee consisting of farmers and ranchers provided direction and input throughout the planning process. This group was expanded later to include Idaho Department of Health and Welfare Division of Environmental Quality, Bureau of Land Management, Idaho Department of Lands, Idaho Fish & Game, and the Nez Perce Tribe. We are going to become more involved in this group to help address the needs of the Nez Perce Tribe.

We have also begun a cooperative agreement with the Center for Environmental Education at Washington State University in Pullman, WA. This agreement is being initiated through watershed assessments and will expand to include their staff to assist with project design and information dissemination. The assessment model is designed to develop and document scientifically based understandings of the natural and cultural

ecology of the area, to provide management recommendations and to establish the groundwork for planning, and monitoring & evaluation of restoration activities in the watersheds. While many people currently understand the need for watershed assessments, little agreement exists about what methodology should be used. Three assessment models are commonly referred to as standards in the Pacific Northwest: The Revised Federal Guide for Watershed Analysis (1995); The Washington Forest Practices Board's Standard Methodology for Conducting Watershed Analysis (1997); and Non-Point Source Solutions Oregon Watershed Assessment Manuel (1997). All three of these methodologies provide procedures for level 1 analysis, with limited or no procedures for level 2 analyses. None of the three, include any significant analysis of cultural, social or economic factors impacting the history and potential for watershed management and restoration. This agreement is allowing us to develop an assessment that will address these needs by taking pieces of the three methodologies and including omitted information to develop a comprehensive watershed assessment model.

The final relationship is within the watershed program itself that includes many projects within the Clearwater Subbasin. The projects that are to be included within the watershed program are:

- Clearwater Subbasin Focus Watershed Program – Coordinate multiple jurisdictions and government agencies efforts to protect, restore, and enhance fisheries habitat in the Clearwater River subbasin. Coordinate among federal, state, and local government agencies and private landowners in cooperation with the Idaho Soil Conservation Commission Focus Program. Project development will emphasize but not be restricted to lands co-managed by federal agencies and the Nez Perce Tribe in the Clearwater River subbasin. Manage implementation projects to enhance or restore fisheries habitat in selected watersheds.

- Lolo Creek Watershed – Coordinate with Clearwater National Forest to improve spawning and rearing habitat through road obliteration/erosion control activities, coordinate with Potlatch Corporation, State of Idaho, Clearwater National Forest, and private landowners to determine riparian protection/grazing exclusion areas, off-site watering development, and cattleguard placement, and perform monitoring and evaluation of riparian areas as a result of fencing and road obliteration/erosion control.
- Squaw and Papoose Creek Watersheds – Improve spawning and rearing habitat through road obliteration/erosion control activities, and perform monitoring and evaluation of road obliteration and sediment reduction procedures.

- Lapwai Creek Watershed – Complete watershed assessment to justify further work within the watershed, and coordinate with private landowners within proposed work area.

- Meadow Creek Restoration–Idaho – Increase understanding of meadow restoration through academic graduate work by comparing low impact vs. aggressive mechanical restoration methods within Meadow Creek and Red River in the South Fork Clearwater River.

- Mill Creek- Construct fence to protect critical spawning habitat within the Mill Creek Watershed.

- Newsome Creek – Obliterate roads to reduce sediment delivery to the stream, and monitor channel morphology.

- North Lochsa Face – Improve spawning and rearing habitat through road obliteration/erosion control activities, and perform monitoring and evaluation of road obliteration and sediment reduction procedures.

- Fish Screens – Analyze and Improve fish screens on pumps and diversions within the 1855-treaty territory of the Nez Perce Tribe.

d. Project history (for ongoing projects)

The Soil Conservation Districts are charged with the role and responsibility of carrying out the goals of the Clean Water Act. In 1989 the Idaho Water Quality Status Report and Nonpoint Source Assessment indicated the designated beneficial uses for Big Canyon Creek are domestic water supply, cold water biota, salmonid spawning, primary and secondary contact recreation, and agricultural water supply. This work led to the Big Canyon Creek Water Quality Status Report, which concluded that pollutants from nonpoint sources adversely affect the designated beneficial use of the creek. There was information gathered for three additional years until the Nez Perce Soil & Water Conservation District and the Lewis Soil Conservation District reached a cooperative agreement outlining the responsibility toward managing these uses. An advisory committee consisting of farmers and ranchers provided direction and input throughout the planning process. This group was expanded later to include Idaho Department of Health and Welfare Division of Environmental Quality, Bureau of Land Management, Idaho Department of Lands, Idaho Fish & Game, and the Nez Perce Tribe. We are going to become more involved in this group to help address the needs of the Nez Perce Tribe.

We proposed activities to begin in 1999 but because of a lack of a proper watershed assessment spent our funding to complete this assessment. The assessment is being done in cooperation with the Center for Environmental Education at Washington State University and our watershed department, as well as other fisheries personnel within the tribe. The assessment will be completed the spring of 1999. This will then allow use to focus work within the watershed.

e. Proposal objectives

1. Participate in the Big Canyon advisory group to address needs within the watershed.
   <u>Product:</u>
- Meet monthly with an interdisciplinary team.
- Document meeting information and include the information in quarterly and annual reports.

2. Gather additional hydrological data on Big Canyon Creek.
   Product:
- Further the baseline data within the watershed.
- Establish permanent data collection sights to monitor changes over time.

3. Immediate work to be done within Big Canyon Creek riparian zones.
   Product:
- Fence off sections of the stream.
- Create off sight watering locations for livestock.
- Revegetate portions of the channel where short-term stabilization needs to occur.

4. Disseminate information about work in the watershed.
   Product:
- Four quarterly reports on project progress as they become due.
- End of the year final project report.
- Necessary presentations to the public and project peers.

f. Methods

Big Canyon Creek is an 85,000-acre watershed in North Central Idaho with the headwaters in Lewis County flowing North to the Clearwater River two miles North of Peck, ID. The watershed is divided into three subwatersheds; 1) Nichols Canyon, 2) Sixmile-Posthole Canyon, and 3) Cold Springs. Cold Springs is the southern most portion of the watershed with Nichols Canyon being the northern most. Land ownership within the watershed includes 72,520 acres private, 623 acres of state land, 7,847 acres of Nez Perce Tribal land, and 4,010 acres of BLM land. This "checker board" ownership causes many different challenges within the watershed and because of this there is a need for a group of people who will represent the various entities. The Big Canyon Creek advisory group is designed to meet this need.

The Big Canyon Creek advisory group has been established to address the many different challenges within the watershed. Due to the diverse nature of the watershed there are representatives from the private lands, NRCS, a member from Nez Perce Tribal Land Services, and Water Resources, a representative from the Nez Perce Fisheries/Watershed, the co-coordinator from the state of Idaho, and from the Nez Perce Tribe, and any other group that has a vested interest in the watershed. All meetings are open to the public and we will create an information sheet that will discuss what is happening in the watershed that will be available to those individuals who want to be informed. We are also going to use our quarterly and annual reports to keep our work documented and on schedule according to the proposals we have written.

Hydrological data will be gathered using Rosgen stream monitoring methodology. This methodology involves monitoring multiple aspects of the stream including substrate, channel classification, longitudinal profiles, cross sectional profiles, and width to depth ratios (Rosgen, 1996). All of the data collected must be done over an extended period of time and at a permanent sight to establish trends. This monitoring will show us if the

work being done within the watershed is having any affect on the overall health of the stream. Substrate will be monitored in two main ways. The first technique will measure the amount of cobble embeddedness within the substrate. With this measurement you can determine whether if the amount of sediment coming through the system is effectively flushed out by stream flows. The second technique is to measure the type of substrate within the system. This will allow you to classify the stream and determine what the proper functioning level of the stream should be. The Rosgen classification system involves placing the particle sizes into categories from 1-6, one being bedrock and the size decreasing to six which is a silt/clay substrate (Harrelson, et.al. 1994). The next technique, channel classification, developed to put rivers and streams into categories based on geomorphic differences. This process lead to a four level system of inventory and assessment that vary from a broad geomorphic characterization down to very specific descriptions (Rosgen, 1996). The next component of this model is a longitudinal profile measurement. A longitudinal survey establishes the elevation of the existing water surface, channel bottom, bankfull stage, floodplains, and terraces. It then determines their slope through the study reach (Harrelson, et.al. 1994). Measuring channel cross-sections is the next area of the Rosgen model. A cross-section is the location for measuring channel form, stream discharge, particle size distribution, and other long-term work (Harrelson, et.al. 1994). The final area of interest is width/depth ratio. This is the key to understanding the distribution of available energy within a channel, and the ability of various discharges occurring within the channel to move sediment (Rosgen, 1996). Each of these components contribute to giving a good picture of what is happening within the watershed and helps to direct limiting factors within the watershed.

We have also identified reaches that have spawning activities by steelhead in them. These reaches also have grazing that happens in the same reach causing increased stress on the adults and redd destruction by cattle and horses crossing the creek. Our plans are to fence the stream to better control the livestock within their pasture. The need for livestock to water will be addressed by working with landowners to develop a watering system outside of the riparian area. We will also work with the landowner to determine the amount of riparian area we can exclude from year round grazing. Our hope is that we can design a grazing management plan that will benefit both fish and livestock. Good range management practices imitate the natural system and foster healthy native plant communities. The four key principles of good range management are: balance animal demand with the available forage supply, distribute livestock evenly, avoid or minimize grazing the range during fragile or vulnerable periods, and provide effective rest after grazing (Adams, B & Fitch, L., 1998).

g. Facilities and equipment

The facilities and equipment to be included in this program includes:

- Computer – Pentium II- 400 MHz, 128 SDRAM, 6.4 GB, 32x CD-ROM, 15” monitor, and multimedia capabilities.
- Vehicle – Use of a four-wheel drive GSA vehicle to get equipment and personnel into areas of work.

- Survey equipment – We will be using both laser and conventional levels to complete our stream monitoring activities. The supporting equipment for the monitoring will include cam-line measuring tape, regular measuring tape, measuring rod, and data collection form.
- Facilities – Use of the office in Lapwai with access to both professional and support staff. We will also have use of office equipment to accomplish the objectives within this project.

h. Budget

The *Protect and Restore Big Canyon Creek Watershed Project* has been decreased in the budget until the assessment is complete in 1999. In the current proposal we are going to address both continuing current baseline data collection and do work within reaches of the watershed which are needed. An explanation of each budget section is given below for the 2000-year budget.

PERSONNEL: Salaries have been calculated using the pay schedule for the Nez Perce Tribe, and are based on estimated time frames to complete the proposed work per objective. The project crew will consist of four employees, the project leader, a technician II, and a technician I. From past experience, it is expected for this crew to need four weeks to complete of the immediate work on Big Canyon Creek. The project leader will be involved in the project longer because of the advisory group and other responsibilities. The project leader, and the technician will primarily complete all consulting with advisory group in the watershed.

FRINGE BENEFITS: Fringe benefits are calculated using the Nez Perce Tribal standards. Fringe benefits equal 14% of tax-exempt employees (tribal) and 24 % of non-tax exempt employees (non-tribal).

SUPPLIES, MATERIALS, NON-EXPENDABLE PROPERTY: All costs are estimated on the amount of proposed work and past experience on what will be need to complete the job. Most of the field supplies, and the program already owns materials. This category included all in-house and field needs to include; office supplies (paper, pens, etc.), gloves, 2 field vests, 2 seeders, 2 string boxes, fencing equipment, ATV ramp, and film.

TRAVEL: This section covers lodging costs and field per diem for all training and on-the-ground work, as well as trips to both Boise and Portland for meetings about any of our projects within the watershed department.

INDIRECT COSTS: Indirect costs are based on Nez Perce Tribal standards. This cost equals 22.9% of personnel, travel, vehicles, and supplies and materials.

SUBCONTRACTOR: This section includes the cost for fencing materials that are subcontracted through a supplier in Grangeville, ID. We also have access to the

Washington State University Center for Environmental Education that is included in the subcontract line item.

OTHER (VEHICLE COSTS): This cost includes two vehicles to be leased from GSA and estimated costs for vehicle and ATV's repairs and service. Two vehicles will be needed to transport employees, ATV's, supplies, and materials.

Section 9. Key personnel

Felix M. McGowan
Nez Perce Tribal Watershed Coordinator
1.0 FTE

Education: 1994 – B.A. in Biology – Gonzaga University Spokane, WA

Current Responsibilities: Coordinate all activities within the Nez Perce Fisheries, wildlife, water resources, and cultural resources. These activities are to include habitat, research, and production as it relates to watershed management, coordinate with cooperating agencies, work with interdisciplinary teams, inventory and evaluate habitat conditions, and coordinate riparian protection and restoration efforts.

Relevant Training:
- Riparian Proper Functioning Condition Training, 1998, Bureau of Land Mgmt.
- Integrated Ecosystem Watershed Management Workshop, 1998, OSU
- Road Obliteration Training, 1998, USDA Forest Service
- Introduction to GIS with ArcView 3.0a. 1998, BIA
- Applied Fluvial Geomorphology, 1998, Wildland Hydrology
- Coldwater Fish Culture, 1998, U.S. Fish & Wildlife Service

Previous Employment:
- May 1997 – present: *Nez Perce Tribal Fisheries/Watershed*
  Nez Perce Watershed Coordinator
- August 1994 – April 1997: *North Idaho College*
  Multicultural Academic Advisor

Expertise:
- Felix has a broad educational base in the natural sciences that allow an understanding of different natural processes. The training he has received over the past year has greatly increased his understanding in fisheries and hydrological sciences. These are two of the most important sciences involved in watershed work.

Relevant Job Completions:

- 1) Squaw Creek Stream Survey, 2) Squaw Creek Road Obliteration, 3) Lapwai Creek Watershed Assessment, 4) Johnson Creek Restoration Review, and 5) Big Canyon Creek Watershed Assessment.

Ira Jones
Clearwater Subbasin Focus Coordinator
Habitat/Watershed Manager
1.0 FTE

Education: University of Montana, Missoula, MT
Major: Wildlife
Attendance: September 1973- June 1974

Current Responsibilities: Planning and implementation of Early Action Watershed Projects, analyze programs, laws, policies related to watershed management, facilitate development of criteria to identify critical fisheries habitat, develop a system to apply criteria to watershed for project development and administration, prepare and plan documents for watershed habitat coordination, provide educational presentation and workshops for watershed management and proposal development, and provide assistance to project proponents with proposal development, implementation, monitoring and assessment.

Previous Employment:

- March 1997 – present: *Nez Perce Tribal Fisheries/Watershed*
  Habitat/Watershed Manager
- June 1986 – March 1997: *United States Forest Service, Region 1*
  Tribal Government Program Manager
- December 1980 – June 1986: *United States Forest Service, Region 1*
  Facilities Manager
- July 1974- October 1979: *United States Forest Service, Region 1*
  Fire Cache Work Leader

Relevant Job Completion:

- Coordinated National, Multi-Regional, and Regional Civil Rights Conferences, 2) Facilitated treaty rights workshops with host tribes and multi-governmental agencies, 3) Organized and conducted Tribal Relations Training primarily for management level from the U.S. Forest Service, Tribes, Bureau of Land Management, and bureau of Indian Affairs, 4) Introduced, implemented, and managed the Inter-tribal Youth Practicums for career in natural resources and leadership within the Forest Service Regions 1, 5, 9, and 10. 5) Developed an intergovernmental Personnel Act (IPA) position to work with the Salish Kootenai College to teach environmental science courses and develop a four-year natural science curriculum at the college. This three-

year position and the program developed into a four-year accredited degree program in the fall of 1996.

We are also going to use staff from the Center for Environmental Education at Washington State University in our work within the watershed. The following individuals are the lead personnel from the university.

Shulin Chen
Department of Biological Systems Engineering, Washington State University
Matching Funds Contribution

Education: 1991 – Ph.D. Cornell University, Ithaca, NY
1981 – B.S. The Agricultural University of Hebei, Baoding, China

Current Responsibilities/ Relevant Job Completions: Dr. Chen is in charge of both teaching and research projects for Washington State University. His teaching responsibilities include water quality, watershed management, natural systems for wastewater treatment, and aquacultural engineering. While his research projects include natural systems for agricultural wastewater treatment for USDA, a problem solving tool for mitigating the impact on water quality of management practices in small rural watersheds for USGS, wet detention pond for highway runoff control for NCHRP, and systems approach for watershed management for USDA.

Previous Employment:

- October 1995 – present — Assistant Professor, W.S.U.
- November 1992 – Sept. 1995 — Research Assistant Professor, L.S.U.
- January 1990 – Nov. 1992 — Post-doctoral Researcher, L.S.U.

Expertise:

- Dr. Chen brings an expertise in water quality and management issues. This expertise will be used to review water quality information and help to apply this data to our work within this project. He also has expertise in environmental engineering that will help us in the design of instream and riparian structures.

Darin Saul
Director, Center for Environmental Education at Washington State University
Matching Funds Contribution

Education: 1996 – Ph.D. Washington State University, Pullman, WA.
1991 – M.A. Portland State University, Portland, OR
1987 – B.A. University of Washington, Seattle, WA

Current Responsibilities/Relevant Job Completions: Dr. Saul is the Director for the Center for Environmental Education and our lead coordinator with WSU. He is currently working on the assessment model that will be used for Watershed Assessments

completed by the Nez Perce Tribe. His experience in scientific writing and past watershed management publications will be invaluable in our efforts to establish a comprehensive document.

Experience:

- Director, Center for Environmental Education. 1996 – present
- Project Manager, Developing a Research Track In General Education Curriculum. 1997 – present
- Associate Director, WSU Pre-service Teacher Environmental Literacy Project. 1996 – present
- Coordinator, Environmental Projects Program 1995 – 1996
- Adjunct Faculty at WSU 1997 – present
- Instructor and Teaching assistant 1990 - 1997

Publications:

- *A Next Step for Environmental Education: Thinking Critically, Thinking Culturally.* Accepted at the Journal of Environmental Education. Submitted February 1997.
- *Paradise Creek Watershed Water Quality Management Plan.* Co-written with Bruce Davis and the Paradise Creek Management for Washington Department of Ecology.
    - "Intercultural Identity in James Welch's *Fools Crow and The Indian Lawyer.*" American Indian Quarterly. Winter 1996, 1-6.

Section 10. Information/technology transfer

Technology transfer will be accomplished through four different mediums. The first and most important is the use of Streamnet to document work done within the watershed. The second medium is through the tribal fisheries newsletter, Salmon Tales. This is a newsletter that is distributed within the northwest to both tribal and non-tribal groups. The final two areas are through public reviews required by BPA and also the quarterly and annual reports that have to be written to fulfill our contract obligations.

Congratulations!